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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,227	09/20/2006	Fang-Fang Yin	1059.00128	7567

7590 02/08/2008
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EXAMINER

ARTMAN, THOMAS R

ART UNIT	PAPER NUMBER
2882	

MAIL DATE	DELIVERY MODE
02/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/570,227

Applicant(s)

YIN ET AL.

Examiner

Thomas R. Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lemelson (US 5,995,866).

Regarding claims 1, 3, 8 and 10, Lemelson discloses a fuzzy inference system and method of modulating radiation treatment, including:

a) an imaging device for creating and storing image data of relevant tissue and organ parts (col.8, line 62 through col.9, line 15),

b) input means for inputting imaging data (col.2, lines 55-59 and col.9, lines 16-31),

c) inference means operatively connected to the input means for analyzing the imaging data and determining a radiation treatment target from a non-treatment target (col.2, lines 59-65 and col.9, lines 31-38) and determining strength of radiation treatment (col.3, lines 1-5; col.9, lines 39-41),

d) output means for modulating radiation treatment pursuant to the analysis from the inference means (col.2, lines 65-66), and

e) modulating radiation treatment pursuant to data obtained from the fuzzy inference system (col.2, line 65 through col.3, line 5).

Lemelson does not specifically use the specific terminology of "fuzzifier" and "defuzzifier." It is known to the skilled artisan, however, that these terms simply refer to the input and output of a fuzzy inference system. Therefore, since Lemelson has a fuzzy inference system that receives input and provides output, then Lemelson anticipates these limitations.

With respect to claims 2, 4, 5, 9 and 11, the system is computer based and performs the modulation automatically (col.8, line 62 through col.9, line 48).

With respect to claims 6 and 7, Lemelson further discloses that the modulating step includes increasing or decreasing the amount of radiation at a specified location (applies select amounts of radiation beams, col.3, lines 1-5; control/direct radiation beam; col.9, lines 39-41).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hosseini-Ashrafi, et al. teach the use of neural networks to identify and classify anatomy and further determine an optimum radiation plan from a known set of possible plans.

Rowbottom, et al. teach the use of neural networks to optimize treatment beam orientations.

Bezdek, et al. teach the use of neural networks based upon fuzzy logic for medical image segmentation. Pugachev (US 6,504,899 B2) teaches that neural networks are used for image segmentation for radiation treatment optimization.

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Smith (US 5,373,844) teaches that artificial intelligence may be used as an alternative optimization method but does not provide additional information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R. Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thomas R. Artman
Patent Examiner